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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER	
PATTERSON, MARC A	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/530,447
Filing Date: April 28, 2000
Appellant(s): KAMI ET AL.

Tipton D. Jennings
For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

This is in response to the appeal brief filed February 2, 2007 appealing from the Office action mailed April 5, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

7-90747	TORAY INDUSTRIES	4-1995
5,378,019	SMITH et al.	1-1995
5,637,385	MIZUKI et al.	6-1997

A full English translation are provided of Toray Industries with this Examiner Answer. The translation was not previously relied upon. The citations in the rejections are to a machine translation of Toray Industries.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10 – 11, 13, 15 and 17 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toray Industries (Japanese Patent No. 0790747).

With regard to Claims 10 – 11, 13, 15 and 17 – 20, Toray Industries discloses an air bag (therefore bonded to have a three – dimensional contour; paragraph 0001, line 1, English translation) formed of a woven fabric (the fabric is made by weaving, therefore a plain weave; paragraph 0087, line 1, English translation) containing a copper compound (a copper halide, therefore a copper salt; paragraph 0025, line 4 of English translation) in a mixture with alkali metal (paragraph 0025, line 6 of English translation) having a copper concentration of 150 parts per million (paragraph 0025, line 5 of English translation); each yarn comprises a plurality of filaments (yarns; paragraph 0021, lines 1 – 3 of English translation) having a fineness of 3 denier (paragraph 0029, line 2 of English translation). With regard to Claims 10 – 11, 13, 15 and 17 – 21, Toray Industries fails to disclose a product of fineness of warp or weft multiplies by weave

density less than 16000 decitex times end or pick per inch, a load at 15% elongation in the range of 3 to 35N/%/inch and tensile work at break of 7000 to 30,000N%/2.54 cm, fineness of weft multiplied by weave density which is larger than the fineness of warp multiplied by weave density, yarns having a fineness from 66 to 167 decitex and a tensile strength of 5.4 cN/dtex or greater and a value of fabric strength at break in a range of from 740 to 1010 N/2.54 cm.

However, Toray Industries discloses a product of square root of fineness of warp of weft multiplied by weave density of 2000 (covering factor; paragraph 0062, lines 1 – 2 of English translation), a tensile strength of 160 kilograms per 3 centimeters (paragraph 0062, lines 2 –3 of English translation) and yarns having fineness of 500 deniers (paragraph 0021, English translation). Therefore, the product of fineness of warp and weft multiplied by weave density, tensile fabric strength (therefore the tensile work at break and load at 15% elongation and tensile strength of the yarn) and fineness of yarn would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end use of the product. It therefore would be obvious for one of ordinary skill in the art to vary the product of fineness of warp or weft multiplied by weave density, tensile strength and fineness of yarn, since the product of fineness of warp or weft multiplied by weave density, tensile strength and fineness of yarn would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end result as shown by Toray Industries in the absence of a showing of unexpected results. *In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980).*

Claims 9, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toray Industries (Japanese Patent No. 0790747) in view of Smith et al (U.S. Patent No. 5,378,019).

Toray Industries discloses an air bag comprising a woven polyamide fabric as discussed above. With regard to Claim 9, Toray Industries fails to disclose an air bag comprising two woven fabrics which are interwoven with each other.

Smith et al teach an air bag comprising two woven fabrics which are interwoven with each other (joined by seam; column 3, lines 56 – 68; column 4, lines 1 – 13) for the purpose of using the air bag on the driver's side of a vehicle (column 3, lines 56 – 57). One of ordinary skill in the art would therefore have recognized the advantage of providing for the interweaving of Smith et al in Toray Industries, which is an air bag comprising fabric, depending on the desired use for driver's side protection of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for two woven fabrics which are interwoven with each other in Toray Industries in order to use the air bag on the driver's side of a vehicle as taught by Smith et al.

With regard to Claims 14 and 16, the air bag which is taught by Smith et al comprises a circular shape (therefore circular in plan view; column 3, lines 56 – 66; Figure 1).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toray Industries (Japanese Patent No. 0790747) in view of Mizuki et al (U.S. Patent No. 5,637,385).

Toray Industries discloses an air bag comprising a woven polyamide fabric as discussed above. Toray Industries fails to disclose an air bag in which the birefringence of the weft is larger than that of the warp.

Mizuki et al teaches an air bag (column 1, lines 11 – 21) comprising a birefringence corresponding to a drawing ratio of 3.0 or more (column 12, lines 4 – 11) for the purpose of obtaining an air bag which is both high – strength and ultra – fine (column 12, lines 41 – 44). One of ordinary skill in the art would therefore have recognized the advantage of providing for the birefringence of Mizuki et al in Toray industries, which is an air bag, depending on the desired strength of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a birefringence corresponding to a drawing ratio of 3.0 or more in Toray Industries in order to obtain an air bag which is both high – strength and ultra – fine as taught by Mizuki et al.

Mizuki et al fail to disclose a birefringence of the weft which is larger than that of the warp. However, Mizuki et al disclose birefringence corresponding to a drawing ratio of 3.0 or more as discussed above. Therefore, the birefringence of warp and weft would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end use of the product. It therefore would be obvious for one of ordinary skill in the art to vary the birefringence of warp and weft, since the birefringence of warp and weft would be readily determined through routine optimization by one having ordinary skill in the art

depending on the desired end result as shown by Mizuki et al in the absence of a showing of unexpected results. *In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980).*

(10) Response to Argument

Appellant argues that it would not be possible to use a yarn fineness of 66 to 167 decitex, which is far less than Toray Industries lower limit of 210 denier, which is equal to 231 decitex, for use in an airbag.

However, Toray Industries does not state that it would be impossible to use a yarn fineness of 66 to 167 decitex or less than 210 denier; Toray Industries states that a lower fineness limit of 210 denier is preferred, but does not state that it is a necessary lower limit. Toray Industries therefore does not teach inoperability below a fineness of 210 denier.

Appellant also argues that Toray Industries teaches away from a fineness that is less than 210 denier.

However, as stated above, Toray Industries does not state that 210 denier is a necessary lower limit; Toray Industries also states in paragraph 0028 that the benefit of lightness is obtained by use of low fineness. Toray Industries therefore does not teach against a fineness of less than 210 denier, and in fact it would be obvious for one of ordinary skill in the art to vary the fineness by routine optimization less than 210 denier to obtain a desired lightness.

Appellant also argues that the claimed fabric strength at break could not be obtained by routine optimization because Toray Industries employs yarns which must have a fineness of 210 denier; the fabric strength at break disclosed by Toray Industries, Appellant argues, is 1561 – 1827 N/2.54 cm.

However, as stated above, Toray Industries is not limited to a fineness of 210 denier. It is also not clear where, in Toray Industries, a fabric strength at break of 1561 – 1827 N/2.54 cm is disclosed.

Appellant also argues that Toray Industries does not disclose the claimed product of fineness of warp and weft multiplied by the weave density.

However, the claimed invention is directed to the product of fineness of either warp or weft multiplied by the weave density. Also, as stated above, it would be obvious for one of ordinary skill in the art to vary the fineness by routine optimization to obtain a desired lightness; it would therefore be obvious for one of ordinary skill in the art to vary the product of the fineness of warp (or weft) and the weave density by routine optimization. Furthermore, in paragraph 0057, Toray Industries discloses weave densities of greater than 50 filaments per inch for the warp and weft; Toray Industries therefore includes weave densities which would provide a product of fineness of warp or weft multiplied by the weave density of 16,000 decitex end or pick.

Appellant also argues that a range of 21,000 – 31,000 is disclosed by Toray Industries for the product of the fineness of warp or weft and the weave density, which is greater than the claimed value of 16,000.

However, Appellant appears to be citing Tables 1 and 3 for the range of 21,000 – 31,000, and Toray Industries does not state that it is limited to Tables 1 and 3.

Appellant also argues that the claimed tensile work at break and load at 15% tensile elongation are not disclosed by Toray Industries, and that the importance of the claimed tensile work at break and load at 15% tensile elongation are not recognized by Toray Industries, and are

not taught by Toray Industries to be result effective variables that may be optimized; Appellant also argues that if the tensile work at break and load at 15% tensile elongation are in the claimed ranges, an excellent airbag is obtained although the fabric strength at break is a low value.

However, as stated in the previous Action, the tensile work at break of a fabric and load at 15% tensile elongation is dependent on the strength of the fabric. Furthermore, the instant specification states on page 9, lines 12 – 23, that the tensile work at break is determined by the product of the fineness of warp or weft and the weave density, and the specification states on page 9, line 24 to page 10, line 13 that the load at 15% elongation is determined by the fineness of the yarns composing the fabric and the single filaments composing the yarns. The specification also states on page 11, lines 27 – 37 that the air bag may comprise any conventional weave. Since, as stated above, it would have been obvious for one of ordinary skill in the art to select a desired fineness, and product of the fineness of warp or weft and the weave density, and since, as also stated above, Toray Industries discloses the claimed chemical structure of the yarns and the fineness of the single filaments, it would consequently have been obvious for one of ordinary skill in the art to select a desired tensile work at break and load at 15% elongation when the desired fineness is selected.

Appellant also argues that because Toray Industries discloses an uncoated airbag, an attempt to provide Toray Industries with a neoprene backing layer would be contrary to the teachings of Toray Industries.

However, Smith et al is cited only for the teaching that it is well – known in the art to produce an air bag comprising an interwoven fabric.

Appellant also argues that Mizuki et al does not teach a birefringence of weft that is larger than that of the warp.

However, the previous Action does not state that Mizuki et al teaches a birefringence of weft that is larger than that of the warp; the previous Action states that Mizuki et al teaches a birefringence larger than 3.0, and that it would have been obvious for one of ordinary skill in the art to select a birefringence of warp and weft, greater than 3.0, depending on the desired end use of the product.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Marc A. Patterson

Conferees:

Rena Dye SPEAU 1794

Carol Chaney SPE AU 1794